

Abstract

5 CIRCUIT ARRANGEMENT AND METHOD FOR GENERATING AN X-RAY
TUBE VOLTAGE

A circuit arrangement for generating an x-ray tube voltage is described, comprises an inverse rectifier circuit (G_{si}) for generating a high-frequency alternating voltage, a high-voltage generator (G_{su}) for converting the high-frequency inverse rectifier into a high voltage for the x-ray tube, and a voltage controller (G_{RU}), which based on a deviation of an actual x-ray tube voltage ($V_U(t)$) from a set-point x-ray tube voltage ($W_{U(t)}$) generates a first controlling variable value ($Y_{U(t)}$) for a controlling variable for the inverse rectifier circuit (G_{si}). The circuit arrangement further comprises a measurement circuit for measuring an oscillating current ($i_{sw(t)}$), connected to one output of the inverse rectifier circuit (G_{si}) of the high-frequency alternating voltage, an oscillating current controller (G_{RI}), which based on a deviation of an ascertained actual oscillating current value ($V_I(t)$) from a predetermined maximum oscillating current value ($W_{I_{max}}$), generates a second controlling variable value ($Y_{I(t)}$). Further, a switching device is connected downstream of the voltage controller (G_{RU}) and the oscillating current controller and compares the first controlling variable value ($Y_{U(t)}$) and the second controlling variable value ($Y_{I(t)}$) to send the lesser of the first and second controlling variable values ($Y_{U(t)}$ and $Y_{I(t)}$) onward as the resultant controlling variable value ($Y(t)$) to the inverse rectifier circuit (G_{si}).